Amendments to the Claims:

The following listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method for detecting a pain-regulating substance comprising the steps of:

(a) incubating a test substance with a cell or a preparation from a cell which has synthesized the protein PIM1-kinase or PIM3-kinase or a protein comprising SEQ ID NO: 2, 4, 6, 9 or 11 or a protein which is at least 90% homologous thereto or a protein encoded by a polynucleotide comprising SEQ ID NO: 1, 3, 5, 7, 8 or 10 or a protein encoded by a polynucleotide which is at least 90% homologous thereto, or a protein encoded by a nucleic acid which binds under stringent conditions to a polynucleotide comprising SEQ ID NO: 1, 3, 5, 7, 8 or 10 or antisense polynucleotides thereof, or a part protein of one of the abovementioned proteins which is at least 10 amino acids long and

(b) measuring the binding of the test substance to the protein or part protein synthesized by the cell or measuring at least one functional parameter modified by the binding of the test substance to the protein or part protein.

2. (Original) A method according to claim 1, wherein the cell is manipulated by genetic engineering before step (a).

3. (Original) A method according to claim 2, wherein the manipulation by genetic engineering allows the measurement of at least one functional parameter modified by the binding of the test substance.

4. (Original) A method according to claim 3, wherein the manipulation by genetic engineering causes expression of a form of a G protein which is not expressed endogenously in the cell or introduction of a reporter gene.

5. (Original) A method according to claim 2, wherein the cell is manipulated by genetic engineering so that the cell contains at least one polynucleotide selected from the group consisting of SEQ ID NOS: 1, 3, 5, 7, 8 and 10 or a polynucleotide which is at least 90% homologous thereto.

6. (Original) A method according to claim 5, wherein the polynucleotide is contained in a recombinant DNA construct.

7. (Original) A method according to claim 2, wherein after the manipulation by genetic engineering and before step (a), the cell is cultured under conditions which allow expression.

8. (Original) A method according to claim 7, wherein the cell is cultured under selection pressure.

9. (Original) A method according to claim 1, wherein the cell is an amphibia cell, bacteria cell, yeast cell, insect cell or an immortalized or native mammalian cell.

10. (Original) A method according to claim 1, wherein the measuring of the binding is carried out via the displacement of a known labeled ligand of the part protein or protein or via the activity bound thereto from a labeled test substance.

11. (Original) A method according to claim 1, wherein the measuring of at least one functional parameter modified by the binding of the test substance is carried

out via measurement of the regulation, inhibition or activation of receptors, ion channels or enzymes.

12. (Original) A method according to claim 1, wherein the measuring of at least one functional parameter modified by the binding of the test substance is carried out via measurement of the modification of the gene expression, the ionic medium, the pH, the membrane potential, the enzyme activity or the concentration of the second messenger.

13. (Original) A method according to claim 1, wherein the protein or part protein in steps (a) and (b) is:

PIM1-kinase;

a protein encoded by a polynucleotide comprising SEQ ID NO: 1, 3 or 5 or a protein encoded by a polynucleotide which is at least 90% homologous thereto;

a protein with an amino acid sequence comprising SEQ ID NO: 2, 4 or 6 or a protein which is at least 90% homologous thereto;

a protein which is coded by a nucleic acid which binds under stringent conditions to a polynucleotide comprising SEQ ID NO: 1, 3 or 5 or antisense polynucleotides thereof, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long.

14. (Original) A method according to claim 13, wherein the protein or part protein in steps (a) and (b) is:

a protein encoded by a polynucleotide which is at least 95% homologous to a polynucleotide comprising SEQ ID NO: 1, 3 or 5;

a protein with an amino acid sequence which is at least 95% homologous to a protein comprising SEQ ID NO: 2, 4 or 6, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long.

15. (Original) A method according to claim 14, wherein the protein or part protein in steps (a) and (b) is:

a protein encoded by a polynucleotide which is at least 97% homologous to a polynucleotide comprising SEQ ID NO: 1, 3 or 5;

a protein with an amino acid sequence which is at least 97% homologous to a protein comprising SEQ ID NO: 2, 4 or 6, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long.

16. (Original) A polynucleotide which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10.

17-18. (Canceled)

19. (Original) An antisense polynucleotide or peptidic nucleic acid which is capable of binding specifically to a polynucleotide according to claim 16.

20. (Currently amended) A vector comprising a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10~~ according to claim 16, or a polynucleotide which is an antisense polynucleotide or peptidic nucleic acid which is capable of binding specifically to a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10~~ according to claim 16.

21. (Original) A protein encoded by a polynucleotide according to claim 16 or by a polynucleotide which hybridizes under stringent conditions with a polynucleotide according to claim 16.

22-25. (Canceled)

26. (Currently amended) An antibody against a protein wherein said protein is:

encoded by a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or 10~~ according to claim 16;

encoded by a polynucleotide which hybridizes under stringent conditions with ~~SEQ ID NO: 7 or 10 or an antisense polynucleotide thereof~~ a polynucleotide according to claim 16, or

at least 90% homologous with SEQ ID NO: 11.

27. (Currently amended) A cell comprising:

a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO:10~~ according to claim 16;

an antisense polynucleotide or peptidic nucleic acid capable of binding specifically to a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10~~ according to claim 16;

a protein encoded by a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10~~ according to claim 16;

a protein encoded by a polynucleotide which hybridizes under stringent conditions with ~~SEQ ID NO: 7 or SEQ ID NO: 10 or a protein encoded by an antisense polynucleotide thereof~~ a polynucleotide according to claim 16;

a protein which is at least 90% homologous with SEQ ID NO: 11, or

a vector comprising a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10~~ according to claim 16 or an antisense polynucleotide or peptidic nucleic acid which is capable of binding specifically to a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10~~ according to claim 16.

28. (Currently amended) A transgenic non-human mammal, the germ and somatic cells of which comprise:

a nucleotide sequence ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10~~ according to claim 16, or

an antisense polynucleotide or peptidic nucleic acid capable of binding specifically to a polynucleotide ~~which is at least 90% homologous with SEQ ID NO: 7 or SEQ ID NO: 10~~ according to claim 16.

29-31. (Canceled)

32. (Original) The method of claim 1, further comprising the step of comparing the measurements obtained after repeating steps (a) and (b) wherein in at least part of the method the protein or part protein in steps (a) and (b) is:

PIM1-kinase;

a protein encoded by a polynucleotide comprising SEQ ID NO: 1, 3 or 5 or a polynucleotide which is at least 90% homologous thereto;

a protein with an amino acid sequence comprising SEQ ID NO: 2, 4 or 6, or a protein which is at least 90% homologous thereto;

a protein encoded by a nucleic acid which binds under stringent conditions to a polynucleotide comprising SEQ ID NO: 1, 3 or 5 or antisense polynucleotides thereof, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long,

or in another part of the method the protein or part protein in steps (a) and (b) is:

PIM2-kinase;

PIM3-kinase;

a protein encoded by a polynucleotide comprising SEQ ID NO: 7, 8 or 10 or a polynucleotide at least 90% homologous thereto;

a protein with an amino acid sequence comprising SEQ ID NO: 9 or 11 or a protein which is at least 90% homologous thereto;

a protein encoded by a nucleic acid which binds under stringent conditions to a polynucleotide comprising SEQ ID NO: 7, 8 or 10 or antisense polynucleotides thereof, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long.

33. (Original) The method of claim 32, wherein in at least part of the method the protein or part protein in steps (a) and (b) is:

a protein encoded by a polynucleotide which is at least 95% homologous to SEQ ID NO: 1, 3 or 5;

a protein which is at least 95% homologous to SEQ ID NO: 2, 4 or 6, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long,

or in another part of the method the protein or part protein in steps (a) and (b) is:

a protein encoded by a polynucleotide which is at least 95% homologous to SEQ ID NO: 7, 8 or 10;

a protein which is at least 95% homologous to SEQ ID NO: 9 or 11, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long.

34. (Original) The method of claim 32, wherein in at least part of the method the protein or part protein in steps (a) and (b) is:

a protein encoded by a polynucleotide which is at least 97% homologous to SEQ ID NO: 1, 3 or 5;

a protein which is at least 97% homologous to SEQ ID NO: 2, 4 or 6, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long,

or in another part of the method the protein or part protein in steps (a) and (b) is:

a protein encoded by a polynucleotide which is at least 97% homologous to SEQ ID NO: 7, 8 or 10;

a protein which is at least 97% homologous to SEQ ID NO: 9 or 11, or

a part protein of one of the abovementioned proteins which is at least 10 amino acids long.

35. (Currently amended) A compound identified as a pain-regulating substance by the method of claim 1 ~~steps of:~~

~~(a) incubating a test substance with a cell or a preparation from a cell which has synthesized the protein PIM1 kinase or PIM3 kinase or a protein comprising SEQ ID NO: 2, 4, 6, 9 or 11 or a protein which is at least 90% homologous thereto or a protein encoded by a polynucleotide comprising SEQ ID NO: 1, 3, 5, 7, 8 or 10 or a protein encoded by a polynucleotide which is at least 90% homologous thereto, or a protein encoded by a nucleic acid which binds under stringent conditions to a polynucleotide comprising SEQ ID NO: 1, 3, 5, 7, 8 or 10 or an antisense polynucleotide thereof, or a part protein of one of the abovementioned proteins which is at least 10 amino acids long, and~~

~~(b) measuring the binding of the test substance to the protein or part protein synthesized by the cell, or measuring at least one functional parameter modified by the binding of the test substance to the protein or part protein~~.

36. (Original) A composition comprising as a pharmaceutically or diagnostically active ingredient an effective amount of:

a. a polynucleotide which codes for PIM1-kinase or PIM3-kinase or a polynucleotide which is at least 90% homologous with SEQ ID NO. 1, 3, 5, 7, 8 or 10;

b. a polynucleotide which is capable of binding specifically to one of the polynucleotides listed under point a);

c. a vector containing a polynucleotide according to one of points a) or b);

d. a PIM1-kinase or PIM3-kinase or a protein comprising SEQ ID NO: 2, 4, 6, 9 or 11 or a protein which is at least 90% homologous with one of these abovementioned proteins or a protein encoded by a polynucleotide comprising SEQ ID NO: 1, 3, 5, 7, 8 or 10 or a protein encoded by a polynucleotide which is at least 90% homologous thereto, or a protein encoded by a nucleic acid which binds under stringent conditions to a polynucleotide comprising SEQ ID NO: 1, 3, 5, 7, 8 or 10 or a protein encoded by antisense polynucleotides thereof or a part protein of one of the abovementioned proteins which is at least 10 amino acids long;

e. an antibody against one of the proteins or part proteins according to point d);

f. a cell containing a polynucleotide according to one of points a) or b), a vector according to point c), a protein or part protein according to point d) or an antibody according to point e);

g. a compound according to claim 35, or

h. an active compound which binds to a protein or part protein according to point d), and

at least one carrier or auxiliary substance.

37-39. (Canceled)

40. (Original) A method of alleviating pain in a mammal, said method comprising administering to said mammal an effective pain alleviating amount of a composition according to claim 36.

41- 42. (Canceled)

43. (Original) A method of providing gene therapy to a mammal, said method comprising administering to said mammal a therapeutic amount of:

a. a polynucleotide which codes for PIM1-kinase or PIM3-kinase or a polynucleotide which is at least 90% homologous with SEQ ID NO: 1, 3, 5, 7, 8 or 10;

b. a polynucleotide which is capable of binding specifically to one of the polynucleotides listed under point a);

c. a vector comprising a polynucleotide according to point a) or b), or

f. a cell containing a polynucleotide according to point a) or b), or a vector according to point c).

44-45. (Canceled)

46. (Original) A method of diagnosing a mammal, said method comprising administering to said mammal the active ingredient of claim 36, and measuring a change in a functional parameter caused by said active ingredient.

47. (Original) A method for investigating the activity of a test substance comprising the steps of:

incubating a test substance with the active ingredient of claim 36, and

measuring binding of the test substance with the active ingredient, or measuring at least one functional parameter modified by interaction of the test substance with the active ingredient.

48-52. (Canceled)

53. (Original) The polynucleotide of claim 16, wherein said polynucleotide is selected from the group consisting of RNA, single-stranded DNA and double-stranded DNA.

54-56. (Canceled)

57. (Original) The polynucleotide of claim 19, wherein said polynucleotide is part of a DNA enzyme or a catalytic RNA or DNA.

58-63. (Canceled)

64. (Original) The vector of claim 20, wherein said vector is derived from a virus or said vector contains at least one LTR, poly A, promoter, or ORI sequence.

65-82. (Canceled)